

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE DIVISIONAL OF APPLICATION OF
KURT DIETLIKER ET AL.

Group Art Unit: 1752
Examiner: R. ASHTON

APPLICATION NO: UNASSIGNED
FILED: CONCURRENTLY HEREWITH
FOR: ALKYLSULFONYLOXIMES FOR HIGH-
RESOLUTION I-LINE PHOTORESISTS OF
HIGH SENSITIVITY

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

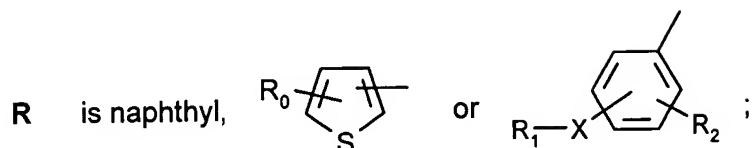
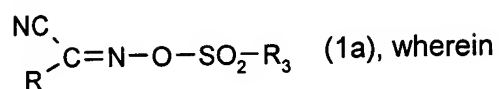
Kindly amend this application as follows prior to calculation of the filing fee and consideration on the merits.

IN THE CLAIMS

Please cancel claims 1-21.

Please add the following claims.

--22. (New) A compound of formula 1a



R₀ is either a R₁-X group or R₂;

X is a direct bond, an oxygen atom or a sulfur atom;

R₁ is hydrogen, C₁-C₄alkyl or a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C₁-C₄alkyl and C₁-C₄-alkyloxy;

R₂ is hydrogen or C₁-C₄alkyl; and

R₃ is octyl or dodecyl.

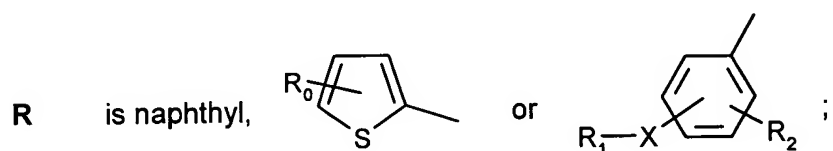
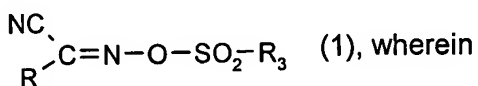
23. A compound according to claim 22, which is selected from the group consisting of α -(octylsulfonyloxyimino)thiophene-2-acetonitrile, α -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and α -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

24. (New) A composition which can be activated by light, comprising

a) at least one compound which may be crosslinked by the action of an acid and/or

b) at least one compound which changes its solubility under the action of an acid, and

c) as photoinitiator at least one compound of formula 1



R₀ is either an R₁-X group or R₂;

X is a direct bond or an oxygen atom;

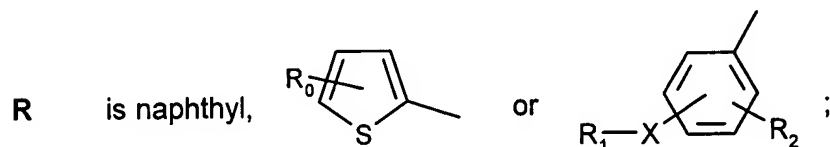
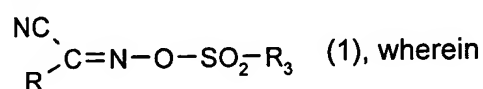
R₁ is hydrogen, C₁-C₄alkyl which is unsubstituted or substituted by phenyl, OH or C₁-C₄-alkoxy or which may be interrupted by an -O-atom, or R₁ is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C₁-C₄alkyl and C₁-C₄alkyloxy;

R_2 is hydrogen or C_1 - C_4 alkyl; and

R_3 is octyl or dodecyl.

25. A composition according to claim 24, wherein the photoinitiator is selected from the group consisting of α -(octylsulfonyloxyimino)thiophene-2-acetonitrile, α -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and α -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

26. (New) A chemically amplified positive photoresist which is developable in alkaline medium and which is sensitive to radiation in the wavelength from 340 to 390 nanometers, which resist is based on oxime alkyl sulfonates as photosensitive acid generator and contains a compound of formula 1



R_0 is either an R_1 -X group or R_2 ;

X is a direct bond or an oxygen atom;

R_1 is hydrogen, C_1 - C_4 alkyl which is unsubstituted or substituted by phenyl, OH or C_1 - C_4 -alkoxy or which may be interrupted by an -O-atom, or R_1 is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C_1 - C_4 alkyl and C_1 - C_4 alkyloxy;

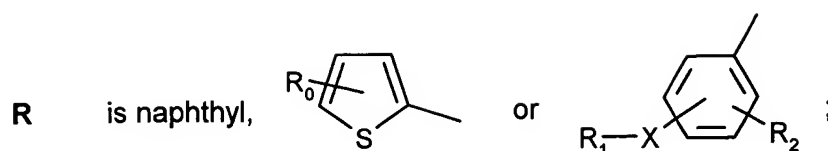
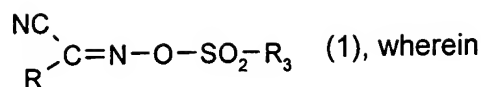
R_2 is hydrogen or C_1 - C_4 alkyl; and

R_3 is octyl or dodecyl.

as at least one of said oxime alkyl sulfonates.

27. (New) A chemically amplified positive photoresist according to claim 26 wherein the compound of formula 1 is selected from the group consisting of α -(octylsulfonyloxyimino)thiophene-2-acetonitrile, α -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and α -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

28. (New) A chemically amplified negative photoresist which is developable in alkaline medium and which is sensitive to radiation in the wavelength from 340 to 390 nanometers, which resist is based on oxime alkyl sulfonates as photosensitive acid generator and contains a compound of formula 1



R₀ is either an R₁-X group or R₂;

X is a direct bond or an oxygen atom;

R₁ is hydrogen, C₁-C₄alkyl which is unsubstituted or substituted by phenyl, OH or C₁-C₄-alkoxy or which may be interrupted by an -O-atom, or R₁ is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C₁-C₄alkyl and C₁-C₄alkyloxy;

R₂ is hydrogen or C₁-C₄alkyl; and

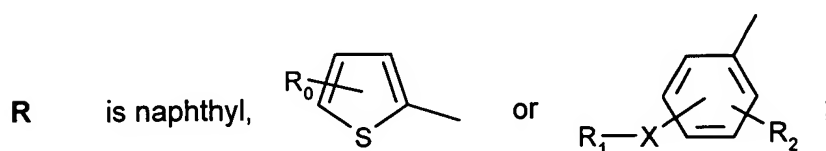
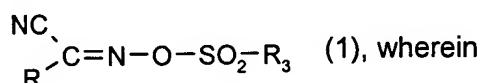
R₃ is octyl or dodecyl.

as at least one of said oxime alkyl sulfonates.

29. (New) A chemically amplified negative photoresist according to claim 28 wherein the compound of formula 1 is selected from the group consisting of α -(octylsulfonyloxyimino)thiophene-2-acetonitrile, α -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and α -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

30. (New) A process for the production of images, which comprises coating a substrate with a composition comprising

- a) at least one compound which may be crosslinked by the action of an acid and/or
- b) at least one compound which changes its solubility under the action of an acid, and
- c) as photoinitiator at least one compound of formula 1



R₀ is either an R₁-X group or R₂;

X is a direct bond or an oxygen atom;

R_1 is hydrogen, C_1 - C_4 alkyl which is unsubstituted or substituted by phenyl, OH or C_1 - C_4 -alkoxy or which may be interrupted by an -O-atom, or R_1 is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C_1 - C_4 alkyl and C_1 - C_4 alkyloxy;

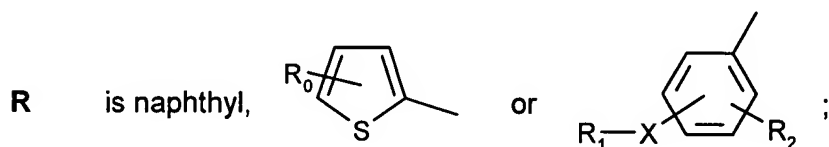
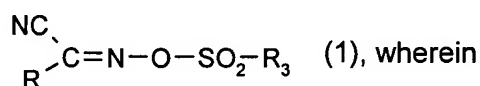
R_2 is hydrogen or C_1 - C_4 alkyl; and

R_3 is octyl or dodecyl.

irradiating the coating with radiation having a wavelength of 340 to 390 nanometers in a desired pattern and, after a heating period, removing the more soluble parts of the coating with an aqueous-alkaline developer.

31. (New) A process according to claim 30 for the production of images, wherein the compound of formula 1 is selected from the group consisting of α -(octylsulfonyloxyimino)thiophene-2-acetonitrile, α -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and α -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

32. (New) A process for generating acids in a photoresist sensitive to radiation at a wavelength of up to 390 nanometers which comprises adding an oxime alkyl sulfonate compound of formula 1



R_0 is either an R_1 -X group or R_2 ;

X is a direct bond or an oxygen atom;

R_1 is hydrogen, C_1 - C_4 alkyl which is unsubstituted or substituted by phenyl, OH or C_1 - C_4 -alkoxy or which may be interrupted by an -O-atom, or R_1 is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, C_1 - C_4 alkyl and C_1 - C_4 alkyloxy;

R_2 is hydrogen or C_1 - C_4 alkyl; and

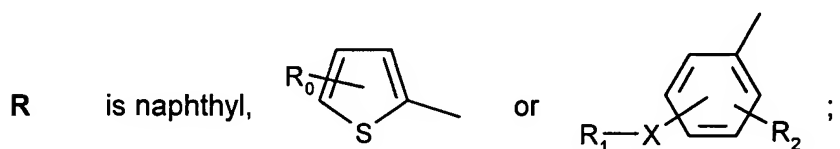
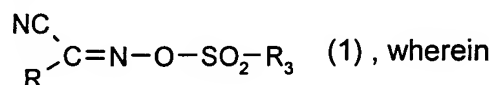
R_3 is octyl or dodecyl.

as photosensitive acid generator and irradiating with radiation at a wavelength of up to 390 nanometers.

33. (New) A process for generating acids in a photoresist sensitive to radiation at a wavelength of up to 390 nanometers according to claim 32 wherein the oxime alkyl sulfonate compound of formula 1 is selected from the group consisting of α -(octylsulfonyloxyimino)thiophene-2-acetonitrile, α -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and α -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.

34. (New) A process for the production of printing plates, color filters, resist materials and image recording materials, wherein a composition comprising

- a) at least one compound which may be crosslinked by the action of an acid and/or
- b) at least one compound which changes its solubility under the action of an acid, and
- c) as photoinitiator at least one compound of formula (1)



R_0 is either an $\text{R}_1\text{-X}$ group or R_2 ;

X is a direct bond or an oxygen atom;

R_1 is hydrogen, $\text{C}_1\text{-C}_4$ alkyl which is unsubstituted or substituted by phenyl, OH or $\text{C}_1\text{-C}_4$ -alkoxy or which may be interrupted by an -O-atom, or R_1 is a phenyl group which is unsubstituted or substituted by a substituent selected from the group consisting of chloro, bromo, $\text{C}_1\text{-C}_4$ alkyl and $\text{C}_1\text{-C}_4$ alkyloxy;

R_2 is hydrogen or $\text{C}_1\text{-C}_4$ alkyl; and

R_3 is octyl or dodecyl,

is irradiated with radiation at a wavelength of up to 390 nanometers.

35. (New) A process for the production of printing plates, color filters, resist materials and image recording materials according to claim 34, wherein the compound of formula 1 is selected from the group consisting of α -(octylsulfonyloxyimino)thiophene-2-acetonitrile, α -(dodecylsulfonyloxyimino)thiophene-2-acetonitrile and α -(octylsulfonyloxyimino)-4-methoxybenzyl cyanide.--